

CLAIMS

We claim:

1. A rotary switch for installation on a disconnect switch to actuate and de-actuate the disconnect switch contacts, the rotary switch comprising:

a base;

a rotor disposed for rotation on said base and responsive to a first force in an axial direction for coupling to a disconnect switch actuating mechanism, and responsive to a second force in a rotational direction to actuate the disconnect switch; and

a stop member on said base for latching the rotor in an "off" position before application of said first force to prevent a rotation of the rotor that would actuate the disconnect switch.

2. The rotary switch of claim 1, wherein the rotor has a socket opening on an inwardly directed end that opens axially inward to receive an upper end of a shaft for actuating the disconnect switch, the socket opening fitting over an end of the shaft when the rotor is moved axially inward by the first force.

3. The rotary switch of claim 1, wherein the rotor has an arcuate groove in an outer surface that extends around an angular distance less than 180 degrees, the groove allowing rotation of the rotor to switch positions for "on" "off" and "test," when the rotor is moved axially inward in response to the first force.

4. The rotary switch of claim 3, wherein along the axial depth of the groove is a notch, which when the rotor is in an axial starting position with the switch in the "off" position, contains the stop member on opposite sides to prevent movement in either rotational direction and to latch the switch in the "off" position.

5. The rotary switch of claim 1, wherein the base is provided with a holed lockout tab and wherein the rotor is provided with a holed lockout tab which aligns with a holed lockout tab on the base of the rotary switch to receive a locking member to lock the rotary switch in the "off" position.

6. The rotary switch of claim 1, further comprising a handle for the rotary switch that is mounted on the rotor and has a first grip formed for gripping and rotating the handle in one rotational direction and a second grip formed for gripping and turning the handle in an opposite rotational direction.

7. The rotary switch of claim 6, in which the handle has a central rib and the first grip is formed by a first groove for a thumb along a first side of the rib and grooves for two opposing fingers along an opposite side of central rib for turning the handle in one direction, and wherein the second grip is formed by a groove for a thumb on the opposite side from first groove and grooves for two opposing fingers on the first side of the central rib for turning the handle in an opposite direction.

8. The rotary switch of claim 6, wherein the rotor has a socket opening on an outwardly directed end that opens axially outward, and further comprising a shaft having one end that is received in an outwardly directed socket opening in the rotor, said shaft being coupled to said rotary handle, said shaft having a non-circular cross section to allow torque to be transmitted to the rotor from the handle through the shaft, and said shaft having an extension to another end for coupling to a door handle of an enclosure in which the rotary switch and disconnect switch are situated.

9. The rotary switch of claim 1, wherein the rotor has a spring supporting member extending towards a bottom end and separated from an interior wall of the base by an annular space, and further comprising a compression spring coiled around the spring supporting member and disposed in the space, said spring having a lower end pressing on a rotor in a housing for the disconnect switch and an upper end pressed on by the rotor in the rotary switch, the spring being compressed by axial movement of the switch rotor from a starting position to an operating position and said spring providing a return force for aiding return axial movement of the switch rotor.

10. The rotary switch of claim 1, further comprising a handle for the rotary switch that is coupled to the switch rotor and has a central rib with a first groove for a thumb along a first side and grooves for two opposing fingers along an opposite side of central rib for turning the handle in one direction, said handle also a groove for a thumb on the opposite side from first groove and two opposing fingers on the first sides of the central rib for turning the handle in an opposite direction.

11. A rotary switch assembly for installation inside an electrical enclosure on a disconnect switch to control actuation and de-actuation of the disconnect switch contacts, the rotary switch assembly comprising:

a switching mechanism disposed inside the electrical enclosure for operation in response to movement in opposite rotational directions and in an axial direction to control actuation of the disconnect switch; and

a rotary handle for coupling to the switching mechanism, the rotary handle having a first grip formed for gripping and rotating the handle in one rotational direction and a second grip formed for gripping and turning the handle in an opposite rotational direction.

12. The rotary switch assembly of claim 11, wherein the switching mechanism comprises:

a base;

a rotor disposed for rotation in said base and responsive to a first force in an axial direction for coupling to a disconnect switch actuating mechanism, and responsive to a second force in a rotational direction to actuate the disconnect switch; and

a stop member on said base for latching the rotor in an "off" position before application of said first force to prevent a rotation of the rotor that would actuate the disconnect switch.

13. The rotary switch assembly of claim 11, wherein the rotary handle has a central rib and the first grip is formed by a first groove for a thumb along a first side of the rib and grooves for two opposing fingers along an opposite side of central rib for turning the handle in one direction, and wherein the second grip is formed by a groove for a thumb on the opposite side from first groove and two opposing fingers on the first side of the central rib for turning the handle in an opposite direction.

14. The rotary switch assembly of claim 13, wherein the handle further comprises thumb and finger rests disposed along a bottom of the thumb and finger grooves and projection laterally therefrom to support the thumb and fingertips and keep them separated from other parts of the switch.

15. The rotary switch assembly of claim 11, wherein the rotary handle has a first grip formed by grooves for a thumb along a first side of the handle and for opposing fingers along an opposite side of the handle for turning the handle in one direction, and wherein the second grip is formed by said grooves for a thumb on the opposite side and for opposing fingers on the first side of the handle for turning the handle in an opposite direction.

16. The rotary switch assembly of claim 11, wherein the base is provided with a holed lockout tab and wherein the rotor is provided with a holed lockout tab which aligns with a holed lockout tab on the base of the rotary switch to receive a locking member to lock the rotary switch in the "off" position.